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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/145,987	09/03/1998	YUKIKO NAKANISHI	2224-0142P	6638
2292	7590	07/21/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			MAIER, LEIGH C	
			ART UNIT	PAPER NUMBER
			1623	

DATE MAILED: 07/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/145,987

Applicant(s)

NAKANISHI ET AL.

Examiner

Leigh C. Maier

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 18, 20, 23, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 18, 20, 23, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Status of the Claims

Pursuant to the letter and after final amendment, filed April 14, 2004, said amendment has been entered, and prosecution is hereby reopened. Any objection or rejection not expressly repeated has been withdrawn. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

Claims 1-13, 18, 20, 23, 26, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The product of claim 1 is recited as "cellulose triacetate." Claim 13, which should limit the scope of the claim, recites an average degree of acetylation of from 58 to 62.5%, so it would appear that claim 1 contemplates a degree of acetylation outside of this range. Practically speaking, that would mean "less than 58%" as 62.5% corresponds to essentially total acetylation of available hydroxyls. However, it appears that in the art, "cellulose *triacetate*" by definition refers to a cellulose acetate having not less than 59% acetylation. See, for example, KIYOSE et al (US 5,914,397) at col 1, lines 22-28. These apparent conflicting limitations render the claims vague and indefinite.

The examiner appreciates that the disclosure describes a cellulose triacetate having an average degree of acetylation of 58 to 62.5%. See instant specification at page 8, lines 24-27.

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However, it does not describe any cellulose *tri*acetate product having a degree of acetylation of *less than 58%*. A possible remedy would be the incorporation of the limitation regarding the degree of acetylation of claim 13 into claim 1. Alternatively, in order to allow for a lower degree of acetylation, the product could be recited as “a cellulose acetate.” The examiner understands that the prosecution to date has comprised much discussion of this nomenclature and does not wish to belabor this issue. However, it is the opinion of the examiner that the term “cellulose acetate” is well known and understood in the art and would not present any problem with indefiniteness.

Further regarding claim 1, the claim appears to be a compound claim. However, feature (ii) recites the inclusion of another component. This conflict renders the claims vague and indefinite. It is noted that recitation of the claim as a “composition comprising a cellulose (tri)acetate . . .” would not *require* the inclusion of other components, thus allowing for the compound, *per se*, but would also allow for the inclusion of other components.

Regarding claim 26, the claim recites “the total content of an alkali metal and alkaline earth metal . . . is an effective amount or more not interfering with heat resistance . . .” It is not clear what for what purpose the “effective amount” is intended. Furthermore, it is known that alkali metal and/or alkaline earth metal is added to cellulose acetate to enhance thermal resistance. See ITOH et al (US 5,804,296) at col 5, lines 54-57. Therefore, it is not clear what is intended by “not interfering” with the heat resistance because it would appear that any amount of these metal ions would have some impact on thermal resistance. The claim is thereby rendered vague and indefinite.

Claim Rejections - 35 USC § 102

Claims 1-10, 18, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by UENISHI et al (JP 2-251607). Because the patent is in Japanese, the examiner relies on an English translation of the document, also of record. Citations refer to the translation.

CAMPBELL et al (US 3,755,297) is also cited to support inherency of recited limitations.

Preliminary notes regarding claim interpretation: Claim 1 begins with a somewhat awkward construction “[c]ellulose triacetate which is soluble in an organic solvent and has a substituent consisting essentially of an acetyl group and further has a carboxyl group and a sulfonic acid group . . .” Setting aside the discussion of “cellulose triacetate” above, it appears that this claim is directed to an acetylated cellulose having a degree of acetylation high enough to be considered a “cellulose acetate” *and* soluble in organic solvent, further comprising carboxyl and sulfonic acid groups, but no other substituents. Further regarding “sulfonic acid,” it appears that this refers to the “SO₃” part of a sulfate (SO₄ attached to the glucose ring) group that is known in the art to be introduced via treatment with sulfuric acid.

UENISHI discloses cellulose acetate in combination with various carboxylic acids. See reference claim at page 2. Citric acid as the carboxylic acid and a dope comprising this product are exemplified. See example at page 5. The product is soluble in organic solvents. See page 4.

The reference is silent regarding carboxylic and sulfonic acid moieties. However, as noted by Applicant in various submitted remarks and by CAMPBELL in US 3,755,297, “commercial cellulose acetate contains small amounts of free carboxyl and acid sulfate groups.” See col 3, lines 23-25. (See also, discussion above regarding sulfonic acid/sulfate groups.) The purpose of the additional carboxylic acid is to chelate metal ions that may be present and would

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result in carboxyls in the free acid state, as in the present invention. The reference directed to the minimization of metal ions, but is silent regarding the actual content of said ions. Since the Office does not have the facilities for preparing the claimed materials and comparing them with prior art inventions, the burden is on Applicant to show a novel or unobvious difference between the claimed product and the product of the prior art. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Claims 1-3, 13, 18, 20, 23, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by KIYOSE et al (WO 96/30412). Because the reference is in Japanese, the equivalent reference, US 5,663,310, is used to indicate its contents. CAMPBELL et al (US 3,755,297) is also cited to support inherency of recited limitations.

KIYOSE teaches the preparation of cellulose acetate comprising treatment of cellulose with acetic anhydride in the presence of acetic acid with sulfuric acid as the catalyst. See examples 1-5. These examples do not disclose the addition of a base to neutralize the catalyst as is explicitly disclosed in example 6. Therefore, this product lacks the source of alkali/alkaline metal ions typical to cellulose acetate preparation. On the other hand, it would be expected to have both carboxyl and sulfonic acid groups, as discussed above, and at least some of the carboxyl groups would be expected to be in the form of free acids. As discussed above, the Office does not have the facilities for preparing the claimed materials and comparing them with prior art inventions, so the burden is on Applicant to show a novel or unobvious difference between the claimed product and the product of the prior art.

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The reference further discloses casting a solution (dope) of these cellulose acetate products dissolved in methylene chloride/ethanol into films. See col 6, lines 57-67; col 7, lines 57-62; and examples.

Claim Rejections - 35 USC § 103

Claims 1-13, 18, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over UENISHI et al (JP 2-251607) in view of EPSTEIN et al (US 3,952,081).

UENISHI teaches as set forth above. The reference does not exemplify the degree of acetylation recited in claim 13 or the preparation of an acidic slurry.

EPSTEIN teaches that highly acetylated cellulose acetate products are known for the preparation of fibers and films. See col 1, line 9-18. The reference further teaches a method of preparing yarn from cellulose acetate comprising the preparation of a slurry. See example 1.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare yarn from the cellulose acetate/carboxylic acid product disclosed by UENISHI by any known method because the reference had taught that the product has this utility. The preparation of a yarn by the method of EPSTEIN would necessarily result in a slurry having the recited pH due to the inclusion of the carboxylic acid. It would be further obvious to use a highly acetylated product because these products have the art-disclosed utility for the preparation of yarn. Finally, given the teaching of UENISHI, it would be within the scope of the artisan to minimize the amount of alkali/alkaline metal ion and optimize the amount of the carboxylic acid through routine experimentation.

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Claims 1-3, 13, 18, 20, 23, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over KIYOSE et al (WO 96/30412). Because the reference is in Japanese, the equivalent reference, US 5,663,310, is used to indicate its contents.

KIYOSE teaches as set forth above. It is noted that it does not appear that the reference explicitly states that the solution comprising the cellulose acetate product in methylene chloride/ethanol is the one that is used to prepare the films. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select this solvent system for casting a film. In the absence of unexpected results, the artisan would be motivated to select a halogenated hydrocarbon because these solvents are expressly suggested at col 5, lines 46-50 and as noted above, such a solution is disclosed.

Examiner's hours, phone & fax numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Maier whose telephone number is (571) 272-0656. The examiner can normally be reached on Tuesday, Wednesday, and Friday 7:00 to 3:30 (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson (571) 272-0661, may be contacted. The fax number for Group 1600, Art Unit 1623 is (703) 872-9306.

Visit the U.S. PTO's site on the World Wide Web at <http://www.uspto.gov>. This site contains lots of valuable information including the latest PTO fees, downloadable forms, basic search capabilities and much more.



Leigh C. Maier
Patent Examiner
June 28, 2004